State of Nevada

Technical Standards Committee

Standard

Control No.	Rev.	Title	Effective Date	Page
7.06	A	Database Technical Standard	09/07/06	1 of 4

1.0 PURPOSE

This document is intended to establish a standard for the selection, implementation, and continued operation of database technologies for the State of Nevada. The goal of this standard is to ensure maximum functionality, connectivity, scalability, and security for the state's information technology investment.

2.0 SCOPE

A. The policies set forth in this standard apply to all agencies of the Executive Branch and to all other state agencies that utilize the enterprise information transport network (SILVERNET).

B. This standard is intended to set the minimum requirements for database technologies that are connected to the enterprise information transport network and are defined as 'vital' or 'critical' by the Critical Business Technology Assessment Program (CBTAP). Additional standards of cyber security may apply relative to agency requirements.

C. This standard is not intended to address the use of desktop office suite applications to retain and manipulate data. The use of such technologies for mission critical data should be discouraged. Office suite technologies should not be employed when external entities such as the general public have access to agency data via the enterprise information transport network.

3.0 EFFECTIVE DATES

The requirements of this standard are effective 90 days after sign-off by the Governor or his designee.

4.0 RESPONSIBILITIES

Agency directors, or their formally appointed designee, must ensure compliance with this standard.

5.0 RELATED DOCUMENTS

All applicable NRS, NAC, Security Policy and PSP Standards.

6.0 STANDARD

The intent of this standard is to specify the technical characteristics of database technologies that are appropriate for use in state information technology systems. Selected server technologies must have the following characteristics:

Industry Standard: Must be compliant with ANSI SQL92 and ODBC standards.

Connectivity: Must have the capacity to connect to the enterprise information transport network using TCP/IP and other industry standard networking protocols.

Access and Security:

- Must have the capacity to authenticate individual users.
- Must have the capacity to differentially assign object level access permissions.
- Must have the capacity to encrypt select data fields.
- Must have the capacity for greater than 100 simultaneous connections.

Note: Individual agencies using client access based licensing may elect to purchase a lower number of client access licenses based on their particular requirements.

Performance Tuning: Must have the capacity to allow analysts to optimize database performance by indexing, de-indexing, and re-indexing select data fields as performance requirements change.

Internal Programming Logic: Must have the capacity to allow analysts to program internal logic in the form of stored procedures, views of the data, and internal table triggers.

Backup, Recovery, and Archiving:

- Must have the capacity for point in time backup and recovery using tape and disk media.
- Must have the capacity to transfer data to other databases/servers on a routine basis.
- Must have the capacity to archive individual tables to flat files.

Data Availability: Must have the capacity to be configured in a server farm or geographically separated environment to ensure reliable transfer of data to a backup server as required by agency activities.

System Capacity and Scalability: Must have the capacity to adjust resource allocation differentially for databases ranging from 1 MB to 100 GB in size.

Diagnostics, Referential Integrity, Error Conditions and Logging: Must have the capacity to diagnose error conditions, enforce referential integrity, and signal and log error conditions.

Batch Processing: Must have an inherent batch processing capability, including initiation of backups, and the signaling of error conditions that occur during batch operations.

Transaction Processing: Must have the capacity to roll back entire transactions that are partially incomplete.

Vendor Stability: Selected database technologies must be provided by vendors with the following characteristics:

- Security research and development with release of security upgrades as required.
- Organized product support and training programs.
- Projected economic viability over product lifetime.

Integration and Interoperability: Integration and interoperability with currently installed systems are attributes that the state must consider in evaluating technological solutions. To this extent the preferred database solutions based on current installations are:

- Microsoft SQL Server
- Oracle
- IBM DB2

Other systems may be considered to the degree that they can provide the requisite level of integration and interoperability with currently installed systems.

Excluded Database Technologies: Database solutions that lack organized and proven product support, training, and security upgrades are not permitted. Freeware and shareware solutions that do not contain full source code open to review are not permitted (refer to section 8.0 for definition of freeware and shareware).

7.0 EXCEPTIONS

Exceptions to this policy must be approved in writing by the state CIO in accordance with the standard requirements for requesting an exemption from approved permanent or interim policies or standards adopted by the Nevada IT Operations Committee (NITOC).

8.0 DEFINITIONS/BACKGROUND

ANSI (American National Standards Institute): A nongovernmental body granted the sole vote for the United States in the International Standards Organization (ISO).

Database: a data structure organized such that data is presented to users as a collection of tables. Each table is organized as a series of rows having identical column names and data types. In a relational database data in different tables are related to each through the use of foreign key values contained in each table. Data may be further organized and constrained to enforce internal consistency, as well as indexed to improve efficiency and speed of retrieval.

Database Server: refers to the hardware, operating system, and specialized software used to create and manipulate databases.

Database Technologies: database servers, databases, and related network infrastructure.

Freeware: computer software that is made available free of charge.

ODBC (Open Database Connectivity): is a vendor-neutral interface that accesses data in a heterogeneous environment of relational and nonrelational databases.

Shareware: computer software that is distributed free of charge, typically for use for a limited period of time to allow evaluation.

SQL (Structured Query Language): is a relational data language that provides a consistent, English keyword-oriented set of facilities for query, data definition, data manipulation and data control. It is a programmed interface to relational database management systems.

Approved By		
Title	**Signature**	**Date**
Technical Standards Committee Chair	Signature on File	10/09/06
NV IT Operations Committee Chair	Signature on File	11/14/06
NV IT Strategic Planning Committee Chair	Signature on File	11/18/06

Document History		
Revision	**Date**	**Change**
A	9/7/06	Initial release.